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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,761	01/29/2004	Gordon B. Hirschman	1484.018	5406

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EXAMINER

TOWA, RENE T

ART UNIT PAPER NUMBER

3736

DATE MAILED: 08/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/767,761	Applicant(s) HIRSCHMAN ET AL.	
	Examiner Rene Towa	Art Unit 3736	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-17 is/are pending in the application.
- 4a) Of the above claim(s) 18-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>6/29/04, 9/02/05</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-6 and 8-17, drawn to a method for visualizing shear force acting on a skin surface detected by an array of sensors, classified in class 600, subclass 592.
 - II. Claims 18-34, drawn to a method of visualizing forces acting on a skin surface detected by an array of sensors, classified in class 600, subclass 587.
2. Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the first representation in a rendering window needs not be a mesh deformed in accordance with the shear force sensed by the array of sensors instead the first representation may be an array representation of vectors or pressure values, perhaps in a bar graph format. The subcombination has separate utility such as providing a method for visualizing shear force acting on a skin surface.

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3. Because these inventions are independent or distinct for the reasons given above and the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Jeff Rothenberg on November 17, 2005 a provisional election was made with traverse to prosecute the invention of group I, claims 1-6 and 8-17. Affirmation of this election must be made by applicant in replying to this Office action. Claims 18-34 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-6, 8, 10-11 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Calame et al. (US Patent No. 6,360,598).

In regards to claim 1, Calame et al. discloses a method for visualizing force acting on a skin surface, the force being sensed at distributed points on the skin surface by an array of sensors, comprising:

displaying an image of a mesh; and

deforming the mesh in a plane of the mesh in accordance with the force sensed by the array of sensors (see fig. 2; column 1/lines 22-28, 35-40 & 48-57; column 2/lines 29-33, 35-38, 42-46 & 54-59).

In regards to claim 2, Calame et al. discloses a method further comprising:

superimposing the image of the mesh on an outline of the skin surface (see fig. 2).

In regards to claim 3, Calame et al. discloses a method wherein the mesh comprises a rectangular grid and intersections of lines of the grid when undeformed correspond to locations of said sensors in said array (see fig. 2).

In regards to claim 4, Calame et al. discloses a method wherein points on outside edges of the grid comprise anchor points, which create a fixed reference that frames the image (see fig. 2).

In regards to claim 5, Calame et al. discloses a method wherein the anchor points are represented with zero force (see fig. 2).

In regards to claim 6, Calame et al. discloses a method wherein the intersections of the lines of the grid in the image are displaced in proportion to the force measured at said sensors (see fig. 2).

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In regards to claim 8, Calame et al. discloses a method wherein the skin surface comprises a plantar surface of a foot (see fig. 2).

In regards to claim 10, Calame et al. discloses a method further comprising:

sensing a second force (i.e. normal) acting on distributed points on said skin surface; and

using color mapping to display the sensed second force along with said image (see fig. 3; column 2/lines 54-59).

It is noted that Calame et al. teaches sensing and displaying two types of forces (i.e. shear and normal forces); wherein an exemplary representation of only normal forces is expressly disclosed in figures 2-3.

In regards to claim 11, Calame et al. discloses a method wherein the second force comprises force or pressure acting generally normal to said surface, and

said color mapping comprises color mapping of the same plane as that of the mesh (see fig. 3; column 2/lines 54-59).

It is noted that figure 3 of Calame et al. discloses a colored contour map of the normal force, which is measured in the same plane as the shear force.

In regards to claim 16, Calame et al. discloses a method wherein said force and said second force are measured with different arrays of sensors (3, 4) (see column 1/lines 22-28).

In regards to claim 17, Calame et al. discloses a method wherein said force comprises shear, and said second force comprises pressure (see column 2/lines 29-33 & 54-59).

Although, Calame et al. does not explicitly disclose a representation of shear force, Calame et al. disclose a system combination (i.e. for the simultaneous detection and representation of shear and normal forces, see column 1/lines 48-57) with a normal force representation substantially as claimed; as such, it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to provide a system similar to that of Calame et al. with a shear force representation since such a modification would amount to a design choice. It has previously been held that changing aesthetic design (i.e. displaying shear force in substantially the same manner as Calame et al.'s normal force representation) is not patentable--See *In re Seid*, 161 F.2d 229, 231, 73 USPQ 431, 433 (CCPA 1947).

Moreover, in regard to claim 10, since Calame et al. teaches overlaying the shear and normal force signals (see column 2/lines 42-46), it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to provide a system similar to that of Calame et al. with overlaid images since it allows for the simultaneous overall monitoring of all the force components (see column 1/lines 35-40 & 48-54).

Furthermore, in regard to claim 16, since Calame et al. teaches combining the shear and normal force measurement systems (see column 1/lines 22-28; column 2/lines 42-46), it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to provide a system similar to that of Calame et al. to measure both the shear and normal forces with the same array since such a modification would amount to a design choice. It has previously been held that making

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integral is not patentable--*See in re Larson*, 340 F. 2d 965, 967, 144 USPQ 347, 349 (CCPA 1965); *In re Wolfe*, 251 F.2d 854, 855, 116 USPQ 443, 444 (CCPA 1958).

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Calame et al. ('598) in view of Kaneko et al. (US Patent No. 6,186,000).

Calame et al. disclose a system, as described above, that teaches all the limitations of the claim except Calame et al. do not teach displaying a field of scaled arrows relative to a direction and magnitude of sensed force. However, Kaneko et al. disclose a system comprising displaying a field of arrows relative to a direction of sensed force (see column 3/lines 34-45; column 4/lines 37-41 & 44-49; column 5/lines 3-5; column 6/lines 2-7). Since Calame et al. discloses displaying a force relative to the magnitude of the sensed force (see fig. 2), it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to provide a system similar to that of Calame et al. with a field of arrows similar to that of Kaneko et al. in order to indicate the magnitude and direction of the force (see Kaneko et al., column 6/lines 6-7).

9. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Calame et al. ('598) in view of Franks (US Patent No. 4,858,621).

Calame et al. disclose a system, as described above, that teaches all the limitations of the claim except Calame et al. do not teach a linear color mapping. However, Franks discloses a system comprising a linear color mapping (see figs. 9a-h; column 6/lines 30-39). It would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to provide a system similar to that of Calame et

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al. with a linear color mapping similar to that of Franks for easier recognition by the user (see Franks, column 6/lines 30-33).

10. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Calame et al. ('598) in view of Sol (US Patent No. 6,231,527).

Calame et al. disclose a system, as described above, that teaches all the limitations of the claim except Calame et al. do not teach automatically determining and highlighting (i.e. through shading) a location of maximum value of said measured forces. However, Sol discloses determining and highlighting a location of maximum value of measured forces (see figs. 1-1A, 4-4A & 5-5A; column 5/lines 43-47 & 63-67; column 7/lines 8-13). It would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to provide a system similar to that of Calame et al. with a step of determining and highlighting a location of maximum value similar to that of Sol in order to analyze the user's posture (see Sol, see Abstract at lines 1-3).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent No. 5,341,687 to Stan discloses a three-dimensional pressure sensor.

US Patent No. 5,323,650 to Fullen et al. discloses a system for continuously measuring forces applied to the foot.

US Patent No. 6,620,115 to Sarvazyan et al. discloses an apparatus and method for mechanical imaging of breast.

US Patent No. 3,850,034 to Tsuchiya et al. discloses an apparatus for detecting pressure distribution.

US Patent No. 6,245,014 to Brainard, II discloses a fitness for duty testing device and method.

US Patent No. 5,375,397 to Ferrand et al. discloses a curve-conforming sensor array pad and method of measuring saddle pressures on a horse.

US Patent No. 4,813,436 to Au discloses a motion analysis system employing various operating modes.

US Patent No. 4,267,728 to Manley et al. discloses an apparatus for analyzing the forces acting on a human foot.

US Patent No. 5,952,585 to Trantzas et al. discloses a portable pressure sensing apparatus for measuring dynamic Gait Analysis.

US Patent No. 6,216,545 to Taylor discloses a piezoresistive foot pressure measurement.

US Patent No. 5,010,772 to Bourland et al. discloses a pressure mapping system with capacitive measuring pad.

US Patent No. 3,894,437 to Hagy et al. discloses a method of and means for dynamic gait analysis.

US Patent No. 6,010,465 to Nashner discloses an apparatus and method for characterizing gait.

US Patent No. 5,941,835 to Sundman discloses a system and method for determining pressure distribution across the sole of a foot.


US Patent No. 5,237,520 to White discloses a foot-measurement and footwear sizing system.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rene Towa whose telephone number is (571) 272-8758. The examiner can normally be reached on M-F, 8:00-16:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Max Hindenburg can be reached on (571) 272-4726. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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